LISTING OF THE CLAIMS

1. (Currently Amended) A method of treating an inner surface of a tubular article having a lumen, the method comprising the steps of:

generating a gaseous plasma within a spatially-localized region of space by electron cyclotron resonance, ~~and~~

exposing ~~at least a portion of~~ an inner surface of the lumen of the tubular article to said plasma for a selected time period to treat the surface, and

subsequently, coating said treated surface with a selected material.

2. (Canceled)

3. (Canceled)

4. (Original) The method of claim 1, wherein the step of generating the gaseous plasma includes

providing a magnetic field having a selected strength within said region of space, and

irradiating a gas contained within or flowing through said region of space with electromagnetic radiation having a frequency substantially equal to electron cyclotron frequency at said magnetic field strength so as to ionize the gas and produce said gaseous plasma.

5. (Original) The method of claim 4, further comprising the step of selecting a partial pressure of said gas to be in a range of about 0.1 Pa to about 1000 Pa.

6. (Original) The method of claim 5, further comprising selecting the gas partial pressure to be in a range of about 1 Pa to about 10 Pa.

7. (Original) The method of claim 6, further comprising selecting the gas pressure to be approximately 5 Pa.

8. (Original) The method of claim 4, wherein the frequency of the electromagnetic radiation (f_c) and the magnetic field amplitude (B) approximately satisfy the following equation:

$$f_c = \frac{1}{2\pi} eB/m$$

wherein e and m are the charge and mass of an electron, respectively.

9. (Canceled)

10. (Original) The method of claim 8, further comprising selecting the radiation frequency to be in a range of about 1 GHz to about 15 GHz.

11. (Original) The method of claim 10, further comprising selecting the amplitude of the magnetic field to be in a range of approximately 300 Gauss to 5500 Gauss.

12. (Original) The method of claim 4, further comprising selecting a power level of the electromagnetic radiation to be in a range of 10 to 500 Watts.

13.(Original) The method of claim 12, further comprising selecting the power level to be in a range of about 75 Watts to about 150 Watts.

14. (Original) The method of claim 13, further comprising selecting the power level to be approximately 100 Watts

15.(Previously Presented) The method of claim 1, further comprising the step of selecting an inner diameter of said tubular article to be in a range of about 0.5 mm to about 20 mm.

16. (Original) The method of claim 1, further comprising the step of drawing said tubular article through said region of space so as to expose different portions of the tubular surface to said plasma.

17. (Previously Presented) The method of claim 16, further comprising selecting a uniform speed for drawing said tubular article so as to provide a substantially uniform treatment of said different portions of the surface of the tubular article.

18. (Previously Presented) The method of claim 16, further comprising selecting a non-uniform speed for drawing said tubular article so as to effect a graded treatment of said different portions of the surface of the tubular article.

19. (Currently Amended) The method of claim 1, wherein said ~~tubing~~ tubular article is formed from the group consisting of electrically non-conductive organic polymer, and electrically non-conductive glass.

20. (Canceled)

21. (Previously Presented) The method of claim 1, wherein said coating material is selected from the group consisting of an organic polymer, an inorganic material, and a bioactive material.

22. (Previously Presented) The method of claim 1, wherein said coating material is selected to be any of anti-thrombogenic, anti-coagulant, anti-biotic or anti-microbial.

23. (Previously Presented) The method of claim 1, wherein said coating material is selected to be anti-coagulant heparin.

24. (Previously Presented) The method of claim 1, wherein said coating material is selected to include any of one or more proteins, one or more vitamins, one or more minerals, or one or more enzymes.

25. (Previously Presented) The method of claim 1, wherein said coating material is selected to have anti-inflammatory analgesic properties.

26. (Previously Presented) The method of claim 1, wherein said coating material is selected to have cell growth properties.

27.(Previously Presented) The method of claim 4, further comprising selecting the gas from the group consisting of noble gases, diatomic gases, hydrocarbons, and fluorinated hydrocarbons and mixtures thereof.

28. (Previously Presented) The method of claim 27, wherein the gas can be selected to be any of argon, oxygen, nitrogen, methane, butane, and tetrafluoromethane and mixtures thereof.

29.(Canceled)

30. (Canceled)

31. (Previously Presented) The method of claim 1, wherein the exposure of the ~~outer~~ inner surface to the plasma effects any of smoothing, sealing, reducing friction, sterilizing, or bond scission of the surface.

32. (Canceled)

33. (Currently Amended) A method of treating an inner wall of an electrically non-conducting lumen, comprising the steps of:

placing a selected portion of said lumen in a treatment zone,

applying a magnetic field having a selected strength to the treatment zone,

introducing a gas into said lumen within said selected portion, said gas being in contact with the inner wall of said selected portion,

irradiating said gas with electromagnetic radiation having a frequency selected to be substantially equal to electron cyclotron frequency at said selected magnetic field strength so as to ionize said gas and create a plasma zone within said selected portion, said plasma treating said inner wall of the lumen so as to cause a physical and/or chemical modification of said inner wall, and

subsequently, coating said treated inner wall with a selected material.

34. (Original) The method of claim 33, wherein the strength of said magnetic field is selected to be in a range of approximately 300 Gauss to 5500 Gauss.

35. (Original) The method of claim 34, wherein the frequency of the electromagnetic radiation is selected to be in a range of about 1 GHz to 15 GHz.

36. (Original) The method of claim 33, further comprising exposing the selected portion of the lumen to the plasma for a pre-defined time period in order to effect a selected treatment of the lumen.

37. (Original) The method of claim 36, wherein the pre-defined time period is in a range from about one second to about one minute.

38.(Previously Presented) The method of claim 37, wherein the selected treatment is any of smoothing or sealing the inner lumen wall.

39. (Original) The method of claim 37, wherein the selected treatment effects any of reducing friction, sterilizing, or bond scission of the lumen wall.

40. (Canceled)

41. (Canceled)

42. (Canceled)

43. (Canceled)

44. (Canceled)

45. (Canceled)

46. (Canceled)

47. (Canceled)

48. (Canceled)

49. (Canceled)

50. (Currently Amended) A method of treating an inner surface of a lumen of each of a plurality of tubular articles, the method comprising the steps of:

generating a gaseous plasma within a spatially-localized region of space by electron cyclotron resonance, ~~and~~

simultaneously exposing a portion of an inner surface of each of the articles to said plasma for a selected time period to treat said surfaces so as to physically and/or chemically modify the inner surfaces, and

subsequently, coating said treated surfaces with a selected material.

51. (Canceled)

52. (Currently Amended) The method of claim 33 ~~51~~, wherein said coating step comprises flowing a solution of a bioactive material through the treated lumen so as to coat the lumen's surface with said material.

53. (Currently Amended) A method of selectively treating an internal surface of a tubular article having a lumen, comprising

placing at least a portion of said tubular article in a treatment zone to which a magnetic field having a selected strength is applied,

introducing a gas into the article's lumen so as to generate an internal pressure different than an external pressure to which an outer surface of said portion is exposed,

~~irradiation~~ irradiating said tubular portion with electromagnetic radiation having a frequency selected to be substantially equal to electron cyclotron frequency at said magnetic field strength so as to generate a plasma within said lumen portion for treating a surface thereof, wherein said external pressure inhibits formation of a plasma in proximity of said outer surface, and

subsequently, coating said treated lumen surface with a selected material.

54. (Currently Amended) A method of selectively treating an outer surface of a tubular article having a lumen, comprising

placing at least a portion of the tubular article in a treatment zone containing a gas at a selected pressure such that an outer surface of at least a portion of said article is exposed to said gas,

causing an internal pressure within a lumen of said tubular portion to be different than said treatment zone pressure,

generating an electron cyclotron resonance (ECR) plasma within said treatment zone so as to treat said outer surface by exposure to said plasma while said internal pressure inhibits formation of a plasma within said lumen portion, and

subsequently, coating said treated outer surface with a selected material.

55. (Previously Presented) The method of claim 54, wherein said step of causing the internal pressure to be different comprises increasing the pressure within said lumen.

56. (Previously Presented) The method of claim 55, wherein said step of increasing the lumen pressure comprises flowing a gas through said lumen.

57. (Previously Presented) The method of claim 54, wherein said step of causing the internal pressure to be different comprises decreasing the pressure within said lumen.

58. (Previously Presented) The method of claim 54, wherein said step of generating an ECR plasma comprises

applying a magnetic field having a selected amplitude to said treatment zone, and

irradiating said tubular portion with electromagnetic radiation having a frequency selected to be substantially equal to electron cyclotron frequency at said magnetic field strength so as to generate said ECR plasma.